The Week In Engineering and Construction

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Some excavation work exempt from stop-order

WPB interpretation of L-41 order says landscaping work, some types of earth moving exempt. Other points cleared

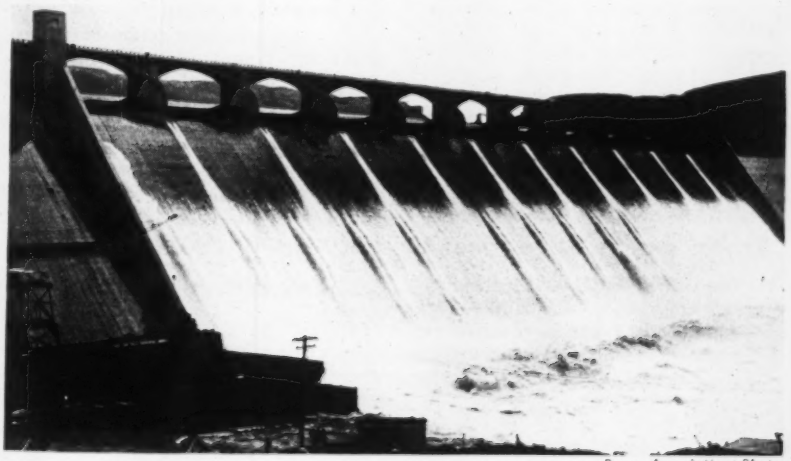
Certain earth-moving operations may be excluded from the cost of small construction projects when determining whether they are permitted without specific authorization under the terms of War Production Board order L-41. The order forbids initiation of new construction not authorized by WPB, but it granted an exemption to residential construction costing less than $500 within a year, farm construction costing less than $1,000, and commercial construction costing less than $5,000.

An official interpretation of L-41, issued this week, said that the term "construction" does not include excavation or earth-moving "where no material except earth or other unprocessed material" is to be incorporated. Thus cost of simple landscaping around a building would not have to be included in the $5,000 limit, but if drain tiles were installed, the landscaping cost would have to be added. Moreover, this interpretation makes definite a fact which has been generally assumed, that pure earthwork jobs—drainage canals and the like—are not affected by the order.

The interpretation also states that used material taken out of a building and then installed in the same or another building without change of ownership need not be included when determining the cost of the construction. Neither must the labor involved in handling such material be taken into account.

Other points in the interpretation: If the uses of a building fall into two classifications (residential, commercial, etc) the predominant use shall determine classification.

Cost of fixtures permanently attached to a structure must be included in the cost of the structure.



Press Association Photo

Grand Coulee water goes over the top

Thousands of persons—residents of nearby communities, engineers and government officials—stood at the base of Grand Coulee Dam, June 1, the first water spilling over the dam's 1,650-ft. wide, 300-ft. high spillway.

The first water, part of a 151-mile lake backed up by the huge dam, trickled over the drum gate at 2:55 P.M. and within a few seconds had covered the entire face of the spillway.

The head at the dam brought to the greatest efficiency Grand Coulee's installation of three 108,000 kw. generators. By November, 1942, two additional generators each of 75,000 kw. capacity, will be added to the dam's generating equipment.

Most of the power generated by the huge project is already allocated and in use by expanding war industries in the Pacific Northwest.

WPB approves lumber sale for war dwellings

Sale of lumber to continue construction of 100,000 dwellings for war workers has been authorized by the War Production Board. Last month the board forbid wholesalers' from selling lumber for a period of sixty days, except to the Army, Navy, Maritime Commission, and certain of their contractors.

Expectation was that retail stocks would take care of necessary war housing work, but this proved not the case, and many projects were in danger of being forced to shut down. Late last month, WPB announced that it would grant special authorizations for purchase of lumber for important housing projects (*ENR*, May 28, p. 881). The present authorizations are the result of that policy.

Public housing projects appear to have fared fairly well. With some 86,000 dwelling units under construction, the Federal Public Housing Authority asked release of lumber for 60,000 dwellings. Clearance was granted on 54,039 of these. A second, shorter, list of projects is now before the WPB.

Clearance was also granted on lumber for 51,350 privately-financed war housing projects.

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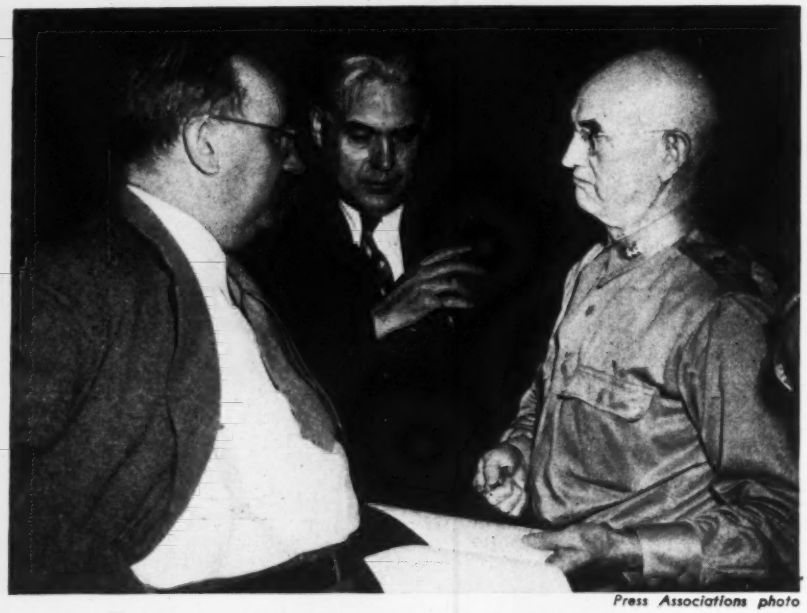
Engineers' status under price order to be cleared

Pending amendments to the Office of Price Administration's General Maximum Price Regulation (L-41) are expected to clarify the ambiguous status of engineers and construction contractors under GMPR. The order, aimed primarily at ordinary sales transactions, froze all prices as of the highest price received by each seller in March of this year.

Engineering services are rather clearly exempted by language in the regulation, which exempts "professional services." The forthcoming amendments will specifically list those occupations which are considered professions.

The difficult problem is the question of the exact status of the construction contractor. An exemption for transactions dealing with real property could perhaps be interpreted as an exemption. If contractors are covered, the order gives them no formula for determining ceiling prices.



Press Associations photo

General Sturdevant answers Alaska Road critics

Brig. Gen. Clarence L. Sturdevant, Assistant Chief of Engineers, on June 1 told a subcommittee of the Senate Foreign Relations Committee that the route along which the Alaska Highway now is being built was chosen in preference to the route favored by the Alaska Highway Commission because it would serve as a link between airfields along the strategic air route to Alaska. Here shown is the general, (right) answering questions from Senators Clark and Shipstead of the subcommittee. Apparently the general minced no words in answering the charge of Senator Langer of North Dakota—who sponsored the investigation—that the location chosen is "an engineering monstrosity."

Foreign maps wanted by Corps of Engineers

Maps and aerial photographs of all areas outside the continental United States now in the possession of private individuals or commercial concerns, are wanted by the Corps of Engineers, U. S. Army, to aid foreign map coverage for military use. Persons holding such maps or photographs have been requested to contact the nearest office of the Foreign Map Sections of the Corps of Engineers, listed below, and advise of the material held. Arrangements will be made for copies, returning originals to owners.

The Corps stresses that good maps are of great importance as munitions in military operations, and ask cooperation of all American citizens, both as individuals and as officials of commercial concerns.

Engineer officers to be contacted are: New York Unit, Room 820, 1270 Sixth Ave., New York City, N. Y. Phone Circle 6-1484. New Orleans Unit, Room 900-A, Maritime Building, New Orleans, La. Phone Magnolia 4006. San Francisco Unit, Room 546, 74 New Montgomery St., San Francisco. Phone Exbrook 2009. Intelligence Branch, Office, Chief of Engineers, U. S. Army, Room 3168, New War Department Building, Washington, D. C. Phone Republic 6700, Ex. 5234-6409.

Kentucky permits parking on highway shoulders

As a part of a program to reduce motor vehicle accidents, signs prohibiting parking on the shoulders of Kentucky highways are to be taken down.

W. F. Watkins, acting state traffic engineer, said that during 1941, 200 motor vehicle accidents were attributed to automobiles parked on the highways.

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Arthur V. Sheridan heads Bronx works department

Arthur V. Sheridan, member of the City Planning Commission of New York, has been named commissioner of borough works of the borough of Bronx to succeed Robert L. Moran, retired. Mr. Sheridan served as chief engineer of that borough from 1934 to 1938 when he was named to the newly created City Planning Commission. His salary as a planning commissioner is $8,500; as commissioner of borough works he will receive $10,840. Mr. Sheridan is a past president of the National Society of Professional Engineers and the New York Society of Professional Engineers. He studied engineering at the College of the City of New York, at Columbia University and in Paris, and taught at Stevens Institute.

WASHINGTON HIGHLIGHTS

IN ORDER to carry out its new policy of undertaking only those public works projects absolutely essential to prosecution of the war, the Federal Works Agency is setting up vital area boards with the job of passing on all projects. The boards will include representatives of the Army, Navy, and Maritime Commission, who will certify as to the importance of projects. The boards will recommend to WPB assignment of high priority ratings to those projects they approve. Work of the boards in the area East of the Mississippi will be under the supervision of Reid W. Digges, who has been named as a special representative of FWA Administrator Fleming. The same job for the western area will be held by B. Frank Bennett.

THE President has asked Congress to appropriate nearly three billion more dollars for the Corps of Engineers. No information is available as to the intended expenditure of the $2,923,000,000 requested, but it is fair to assume that most of it will be used for military construction—airfields, camps, and the like—within and without the continental United States.

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Release third scarcity list of war materials

The increased momentum of the nation's all-out war effort is reflected in the third provisional report on relative scarcity of certain materials, issued last week by the conservation and substitution branch of the bureau of industrial conservation, War Production Board.

The report follows the arrangement of previous reports (*ENR*, April 23, p. 599 and previous) listing materials in three groups, according to their availability for substitution or use in civilian industry.

Harvey A. Anderson, chief of the branch, said that the third group, which lists materials available in quantity, is now practically void of metals and chemicals. Most of its items are used with little change from the condition in which they are mined, quarried, or grown. Even where there are almost unlimited supplies, as of lumber, oil and cotton, certain varieties or grades have become scarce, Mr. Anderson said. Further, in the case of large tonnage items, the problems of labor, manufacturing and transportation have become increasingly important in making the materials available.

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J. G. White dies, was founder of three firms

James Gilbert White, 80 founder of three engineering and construction firms, died June 2 at Greenwich, Conn.

Born at Milroy, Pa., Mr. White graduated from Pennsylvania State College in 1882 and studied electrical engineering and civics at Cornell University. He was an instructor in physics at the University of Nebraska from 1885 to 1887. In 1887, he joined in the organizing of Western Engineering Company, and became president of the concern. When the company was absorbed by Edison United Manufacturing Co., in 1890, Mr. White resigned to establish his own business.

He organized the engineering and contracting firms of J. G. White & Co., J. G. White & Co., Ltd., of London, and the J. G. White Engineering Corp. He supervised the design and construction of power houses, bridges, railways and electric power lines.

Mr. White was a member of the American Society of Civil Engineers, American Institute of Electrical Engineers and other organizations.

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Revenue drops bring cuts in road department work

Wartime stringencies on state highway department funds were evident last week, as two such bureaus announced curtailment of their personnel and work.

The Alabama State Highway Department has abolished its fifth division, consolidating its activities with those of other divisions. W. G. Pruett, highway director, said no new construction excepting access roads will be undertaken for the duration of the war.

Ben Prince, chairman of the North Carolina Highway and Public Works Commission, said the commission's traffic engineering department has been discontinued, since Adolphus Mitchell and W. H. Griffiths, departmental engineers, have left the commission's employ to aid in construction of a new naval base.

Illinois highway bureau sees sharp revenue drop

On the possibility that the present war may continue for four years, engineers of the Illinois State Highway Department last week submitted to Gov. Dwight H. Green a four-year forecast of highway construction for the state.

The report was started several months ago, when it became apparent that the normal functions of the highway department would be seriously affected by the war. Prepared by the Bureau of Highway Research, it is a comprehensive analysis of the estimated revenues, probable expenditures and other data.

The problem of determining the fiscal position of the highway department for each of the four years was approached by setting off against anticipated revenues the amount of fixed costs—as debt service, maintenance and overhead—and computing the remaining surplus to be available for construction purposes.

On the basis of anticipated yearly receipts compared with annual fixed expenditures, therefore, the report says that in 1942 there will be a surplus for highway construction of $10,455,000. In 1943, this surplus will diminish to $3,961,500, and there will be deficits of $2,764,000 and $7,255,500 in 1944 and 1945 respectively.

The cost of normal peacetime highway improvements has been about $20,000,000 yearly.

It was pointed out, however, that reserves carried over from 1942 and 1943 surpluses will be ample to counterbalance the anticipated deficits for 1944 and '45. During the latter two years the financial resources of the department will be adequate to continue essential maintenance work on roads and meet all fixed charges.

Principal cause for the sharp drop expected in construction funds is the expected decline of motor fuel and auto license revenues which now form the major portion of department revenues. Passenger car registrations totalling 1,825,142 in 1941 are expected to drop to 475,000 by 1945, with a corresponding decrease in commercial vehicle registrations from 234,703 in 1941 to 155,000 by 1945.

Passenger cars paid $34,002,400 in gasoline and fuel taxes in 1941, but are expected to pay no more than $4,264,200 in 1945.

Looking into the future generally, the report said that although a proposed $200,000,000 rehabilitation program will be curtailed by wartime scarcities and decreasing funds, at least $10,000,000 must be expended to keep the state's vast road system in repair.

A program of bituminous resurfacing and concrete patching is advised, since it involves the use of no critical materials and can be carried out with minimum disturbance to normal traffic.

Construction bureau of WPB moved to New York

The recently-formed construction branch of the War Production Board has been moved to New York City, where its headquarters will be the Empire State Building. Headed by W. V. Kahler, the branch is responsible (*ENR*, April 16, p. 583) for administration of the construction limitation order, L-41, for assignment of priority ratings to housing and other construction projects, for reviewing project designs to see that a minimum use is made of materials, and for providing general service to expedite war construction jobs.

British expand dormitory war housing scheme

Results of practical experience in the management of workmen's hostels, or dormitories, in new industrial areas in England have been incorporated in new plans for standard accommodation for 1,000 workers, designed by the Ministry of Works and Planning. More comfort is to be given than in earlier designs for mass housing construction.

The new standard "hostel" planned will consist of a central welfare building (containing assembly hall; two canteens, 50x45 ft., with 256 seats each; kitchen; games rooms, tea bar, reading and writing rooms with garage, shops, stores, laundry, sick bay) and administrative quarters in the vicinity, and 16 large sleeping huts. The sleeping huts are U-shaped and contain 14 double and 4 single cubicles in either wing; a common room is provided in each of the huts which also enclose separate air raid shelters. The size of a double cubicle is 12x20 ft.

The entire area covered by the "hostel," if the normal layout plan is followed, is 900x1200 ft. All buildings are one-story. The choice of construction materials depends on local conditions.

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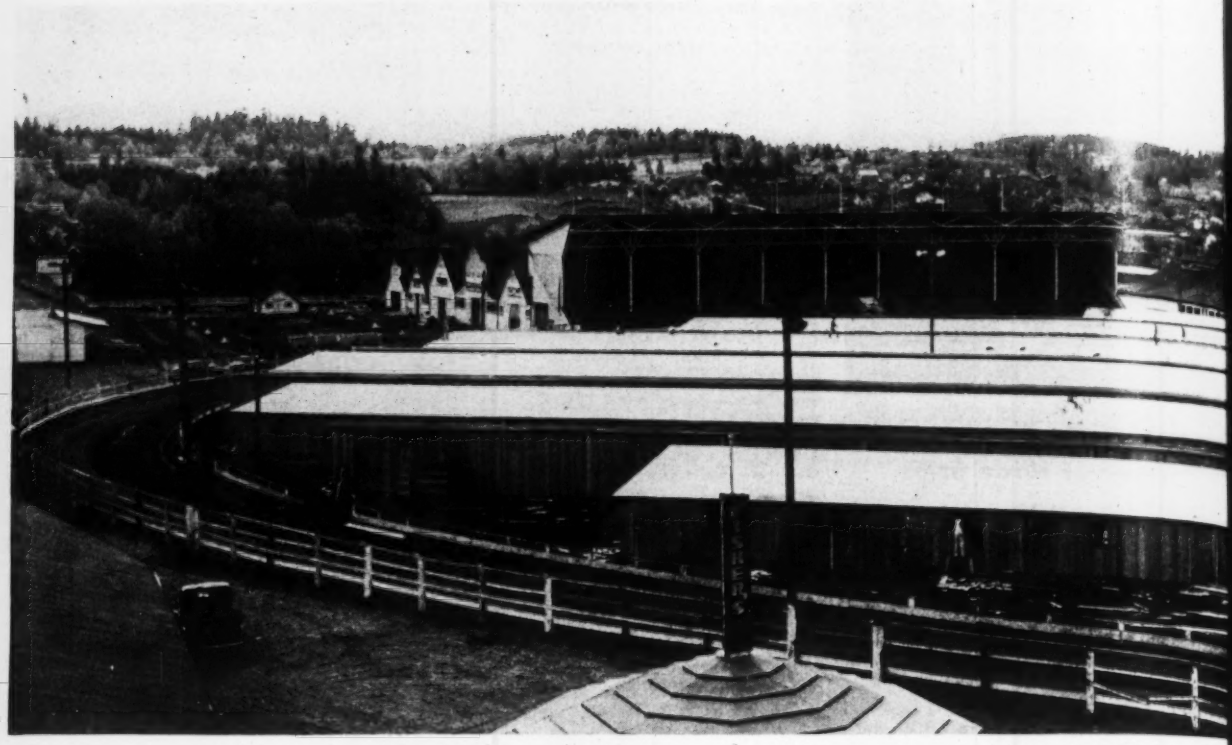
Markwell gets regional FWA directorship

Kenneth Markwell, former project engineer for the Santee-Cooper project in South Carolina, and recently named project engineer for the Yadkin River project near High Point, N. C., last week was placed in charge of all FWA projects east of the Mississippi River, involving the generation of power. It was also announced that he will serve as regional FWA director for the Middle Atlantic states.



Part of the 34-acre Japanese reception center at Puyallup, Wash., which is located on the

Camp facilities for 8,00

ONE SATURDAY AFTERNOON in March, the district engineer in the U. S. Engineer office at Seattle received an order from Gen. de Witt, head of the Western Defense Command which read: "Provide accommodations for 8,000 Japanese evacuees with necessary sanitary and messing facilities at Puyallup fair grounds and adjacent 34-acre parking lots. Completion date: April 15, 1942. *MUST*."

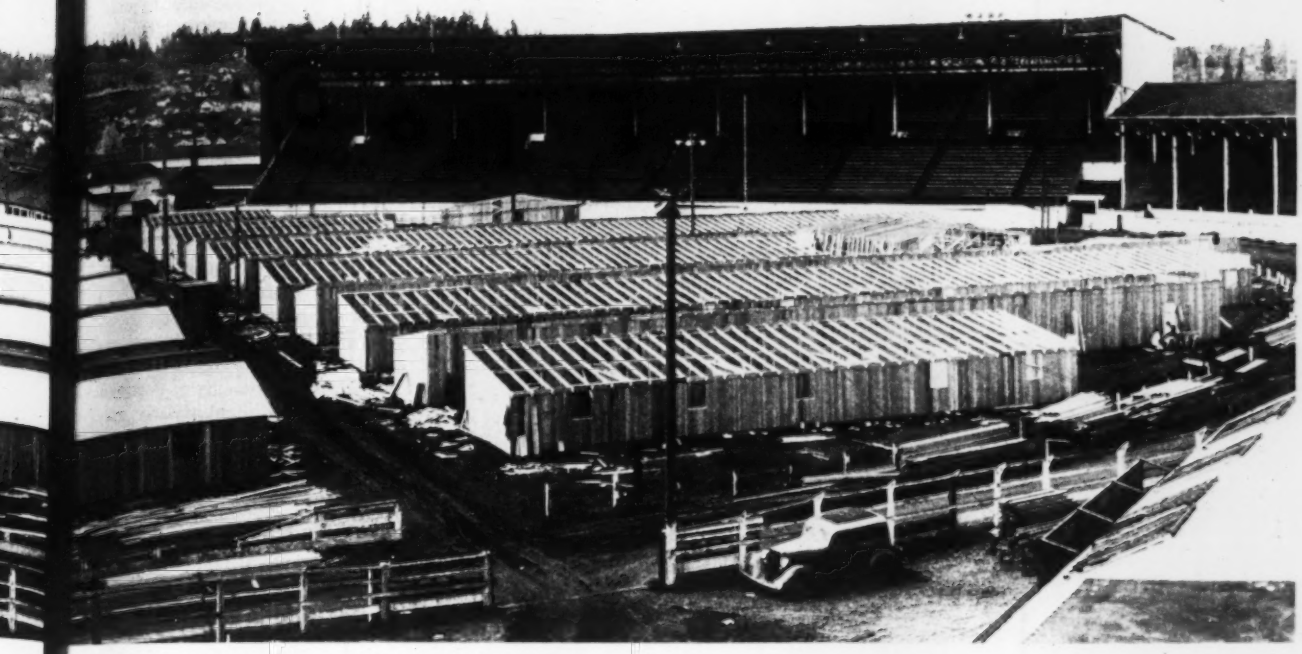
There were only 17 days in which to make plans, purchase materials, find the necessary labor and build barracks and other buildings that would require, to mention only one item, about 5-million b.ft. of lumber.

First endeavor was made to do the work by contract. In this instance, however, labor problems were too much for the contractor and it was necessary for the Army to take over. The work was assigned to an aggressive resident engineer, quickly borrowed from other work nearby, who was put in complete charge of design and construction with orders to "proceed immediately by such means as will insure completion by April 15." Use of the U. S. Employment Service made it possible to obtain necessary workmen speedily and without permitting any claim of discrimination for or against unions.

No draftsmen were immediately available, and construction had to start before even a general layout of the buildings was roughly sketched. When plans were drawn and the decisions were reached as to arrangement and equipment, the following facilities were included:

About 200 family barracks, each 20x120 ft. in plan, to be divided into 7-family compartments, each with door, window, stove and electric light. Other sleeping quarters brought total facilities up to slightly more than the specified 8,000. Each of the several areas into which the camp is divided is provided with mess hall, latrine, bath house, warehouse and laundry. One 100-bed hospital was provided for the camp as a whole. The mess halls, 40x100 ft., are designed to serve 500 persons. Each has a concrete kitchen floor, one 3-oven Army range, and accessories. The latrines are 10x24 ft. in plan, each containing 12 water-flushed toilets, one for each 20 persons. The bath houses are 18x20 ft., each containing 8 showers, one for each 30 persons. Enclosing the camp is a 10-strand barbed

Some of the 200 barracks buildings of the Puyallup reception center. Use of shed type instead of gable-type roofs permitted faster construction.



...where some buildings were already available that could be pressed into service as a part of the new center.

...aps completed in 17 days

wire fence 8 ft. high, with 6 watch towers at strategic points equipped with flood and spotlights.

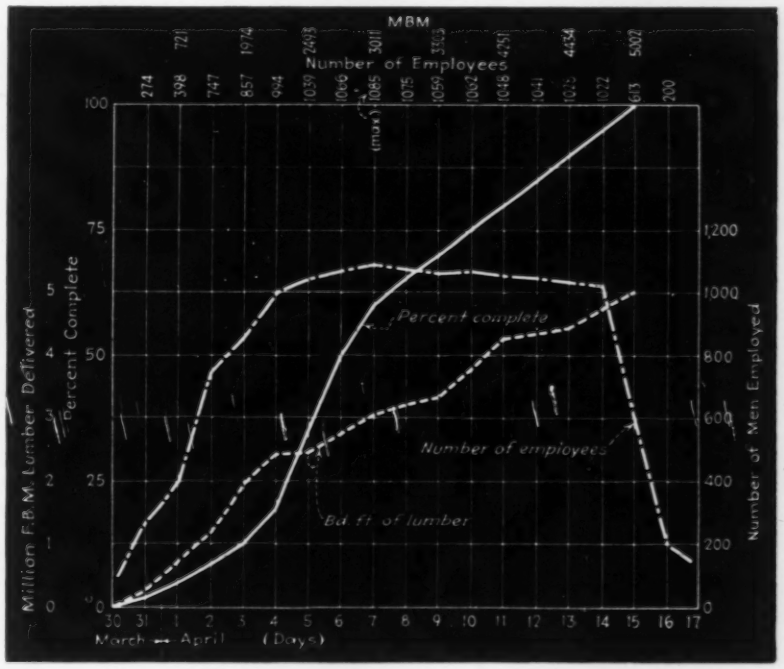
The accompanying curves show the rate of progress and the relation of labor to materials used. The demand for speed, the mud and the extent to which lumber piles scattered about hampered auto travel made it advisable to provide 5 saddle horses for general foremen. This greatly expedited supervision.

It was realized that there would be great need for lumber, delivered *quickly*. Attention was concentrated on this need, and 11 load spotters were detailed to expedite lumber deliveries. In one 3-hr. period more than 500,000 b.ft. of lumber was delivered. While a power truck was erecting a pole for floodlights, so much lumber was dumped around it in a 15-min. period that the truck was entirely hemmed in before its plight was discovered.

At midnight on April 15, deadline for completion of the job, the resident engineer found construction completed, the office manager sitting on a chair on top of his desk calling out the figures while the entire field office staff posted time on the 1,100-man payroll. (The payroll was completed at 5 a.m. next morning.)

Construction of the Puyallup Japanese assembly center was carried out under the direction of Col. Peter P. Goerz, district engineer, U. S. Army Engineers; Otto R. Lunn, resident engineer; Wilfred Sargent, office manager; Dwight R. Moody and Homer D. White, field engineers; and Antone B. C. Nielsen, general superintendent.

Charts showing progress of construction for the reception center in terms of lumber, labor and percentage of completion.



Pennsylvania pushes flood clean-up

While more than 1,600 WPA workers aided in rehabilitation, Governor Arthur H. James of Pennsylvania last week appointed a committee of four engineers to study damages in the Luzerne-Lackawanna-Wayne county area resulting from disastrous floods three weeks ago (*ENR*, May 28, p. 884).

Result of torrential rains that swelled dozens of tributaries of the Susquehanna, Lehigh, Schuylkill and Lackawanna rivers, the flood washed out 35 bridges, damaged 22 state highway routes, damaged buildings and railroad tracks, put some municipal water systems temporarily out of commission and caused the loss of at least 25 lives.

Governor James appointed a committee including Thomas C. Frame, chief engineer of the Department of Highways; Roderick J. Gillis, chief of encroachment division, water and power resource board, Department of Forests and Waters; Joseph J. Walsh, deputy secretary of mines, and J. Raymond Hoffert, civil engineer-secretary of the sanitary water board, Department of Health, to study the flood damages with a view to reporting on what steps may be taken, in cooperation with federal and local officials, in repairing damages.

One ingenious step to circumvent the problem of obtaining steel in a priority-ruled economy was announced by the highway department when it is said that it is removing six steel girders from an abandoned railroad structure in Monroe county, to be used for repair of bridges damaged in the flood. The girders will be placed in highway bridges at Bowmanstown on a Carbon County road; and on Route 6, near Prompton. The steel will be removed and transported by contract, while the work of repairing the structures will be done by the department's maintenance forces.

Richard Irvin, State Works Projects Administrator, said that his organization has assigned 1,650 workers to the flood areas. In Honesdale, the borough hardest hit by the floods, there were 387 WPA workers. Others are assigned to Hawley, Moosic, Dickson City, Olyphant, Blakely, White Haven, Wilke-Barre, Allentown, and Philadelphia, and other localities.

Irvin said that WPA men have removed 3,960 tons of dirt from Main St. in Honesdale and have relaid approximately 20,000 sq.ft. of sidewalks in the town. In many places, he said, it was necessary to remove flagstones and fill washouts 3 to 6 ft. deep and 8 to 12 ft. wide before repairing the sidewalks.

Other work in Honesdale included construction of piers and cribbing up of foundations of three buildings, removal of 75 large trees, and haulage of 72 truckloads of branches, drift wood, shrubs and rubbish.

Floods reported in Minnesota

Heavy rains during the past week swelled hundreds of tributary rivers flowing into the Mississippi along the southeast border of Minnesota. Storms near the Twin Cities caused Medicine Lake outside of Minneapolis to overflow its banks and isolate hundreds of lake homes when roads were covered. Lake Minnetonka, flowing over Gray's Bay dam for the first time since 1929, encroached on its shoreline at many points. In Dunn County, 19 bridges were washed out with damage of $75,000 or more. Nearly a score of bridges were washed out in Pierce County. Parts of the town of Berlin, Wis., were covered with 2 ft. of water.

Propose extending Coast railways for war workers

The California Railroad Commission is seeking federal funds to finance immediate extension of seven electric railway lines near Los Angeles, in order to improve service to seven aircraft factories and numerous harbor facilities in the area. These industries at present can be reached only by auto.

The proposed extensions would include a total of 87,500 ft. of rail on the Burbank, North Hollywood, Santa Monica, Long Beach, Santa Ana and other lines of the Pacific Electric Railway in the harbor area. Extension of the Los Angeles Railway's Hawthorne line by 7,730 ft. is also planned.

Construction cost is estimated at $2,405,300. Ballast, ties and rails are to be laid directly on top of existing streets.

Vancouver strains to house shipyard workers

Vancouver, Wash., normally a city of 17,000 residents, last week was facing the urgent problem of providing housing for an expected influx of shipyard workers who, with their families, will nearly quadruple the city's population.

At the request of the Kaiser Shipbuilding Co., housing officials of the city are considering plans for erection of 13,500 houses for workers' families, and dormitories to accommodate an additional 4,000 to 5,000 single men. The housing project as contemplated would more than treble Vancouver's present 6,000 homes, and nearly quadruple the city's population.

The Kaiser Co.'s shipyard contemplates peak employment of 36,000 men.

W. K. Perry, executive secretary of the Vancouver Housing Authority, said the authority has just received assurance on certificates of necessity for an additional 5,000 demountable houses, and for construction of five more dormitories near the shipyards, to accommodate 2,000 single men. The city at present is carrying out a construction program to build 1,000 permanent houses, 4,000 demountable houses, and has completed five dormitories.

Perry indicated that it may become necessary to modify the present procedure of erecting single dwellings for varying family sizes to the construction of apartments. He said that in this event, the current construction cost of $3,750 a unit will be dropped to about $2,100.

As another means of relieving the strain of housing demands, the authority said it has hopes that the city of Portland, Ore., just across the Columbia River, may assume a greater share of defense housing than the 3,100 units now projected there.

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Consultants to supervise Connecticut bridge work

In order to assure the best possible control of construction operations on the two large bridges it has under way, the Connecticut State Highway Department has retained two well known engineering firms to supervise the remaining field work. Fay, Spofford & Thorndike, of Boston, will handle the Thomas River bridge at New London, and Robinson & Steinman, New York, the Connecticut River bridge at Hartford. It will be recalled that the first span of the Hartford bridge was wrecked by a falsework failure late last year (*ENR*, Dec. 11, 1941, p. 1).

Robinson & Steinman have been the consultants to the Hartford-East Hartford bridge Commission, but under the new agreement Mr. Robinson will spend considerable time in the field, particularly during critical periods of erection. R. M. Boynton of the same firm has been appointed resident engineer on the job.

On the Thames River Bridge, Parsons, Klapp, Brinckerhoff & Douglas will continue as consultants to the New London-Groton Bridge Commission, while Fay, Spofford & Thorndike will perform actual engineering services during the balance of construction. Robert E. Crawford, of the latter firm, will be resident engineer.

L. J. Conaty and W. G. Brenneke, formerly resident engineers in Hartford and New London respectively, have been retained as project engineers on the two jobs, directly responsible to Boynton and Crawford.

The new arrangements, in which the two bridge commissions concurred, were effected by Frank Upman, Jr., acting commissioner, Connecticut State Highway Department.

Britain restricts glass to non-target areas

To insure economical use of materials limited in supply, and to make for greater safety, the British Ministry of Works and Planning recently announced a series of recommendations for the use of glass and glass substitutes in buildings.

For vertical windows in "normal non-target" areas, use of 24 oz. sheet glass, ordinary quality rough or other, is suggested. In "normal danger" and "specially dangerous" areas, the same types of glass are permissible only if protected by a specified anti-scatter fabric; otherwise wired cast glass may be used. Plastics reinforced with metal or fabric netting may also be used for vertical windows in "specially dangerous" areas. Non-reinforced plastics may be used in some cases but require special approval.

For emergency repairs and replacements, preference is given to impregnated fabrics, but protected glass, wire glass and glass substitutes are permitted for repairs. In roof lights, plastics with metal or textile reinforcement will be used with additional support. Black and dark colored glass substitutes of a matt surface texture may be used for camouflage purposes.

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WPB adds Michigan war road to federal aid work

G. Donald Kennedy, Michigan state highway commissioner, said last week that the War Production Board has certified the improvement of a strategic network highway "as essential to national defense," and approved its addition to the regular 1943 federal aid program.

The improvement project calls for 12.1 miles of grading, widening and resurfacing with bituminous concrete on U. S. 12, in Van Buren and Kalamazoo counties in the village of Paw Paw and east to Oshtemo.

"This project," Kennedy said, "was one of four calling for the improvement of 58 miles of strategic highways that have begun to go to pieces under the terrific pounding of heavy traffic generated by the war program.

"By its action, the War Production Board has opened the way for federal aid assistance in the improvement of similar highways."

Kennedy said that plans have been in preparation for the improvement of more than 100 miles of sections of strategic network highways in one of the largest resurfacing programs in the history of his department. The work to be done is base repair and replacement of concrete slabs where necessary, bituminous resurfacing, and in some instances widening pavements from their present width of 16 and 18 ft. to 20 ft.

Cities seek water supply expansion

With demands pushing far ahead of any previous estimates, many American cities last week continued their almost frantic search for further means of expanding water supply sources and facilities.

Suddenly expanded industry, bringing with it greatly expanded populations, has forced most cities to look to their supplies. (*ENR*, April 2, p. 519.)

Philadelphia, where newspapers said that the water system had been "falling apart" ever since the Spanish American War, discovered last week that small seepages in its pipes are responsible for a waste of 10,000,000 gpd—about 3 percent of the capacity of the water system. The city was having difficulty in obtaining materials for repairs and new conduits, despite an A-4 priority rating. Newspapers suggested that the federal government take over the job of putting the city's water system into safe condition as an emergency measure.

Action of the Salt Lake City, Utah, city commission in entering agreements to supply water to war industries in its area, regardless of whether or not the proposed Salt Lake aqueduct is completed, is said to have placed the city in the embarrassing position of being unable to meet its commitments.

The agreements prompted a dispute between City Commissioner George D. Keyser, head of the water department, and the Salt Lake Metropolitan Water Board. While Commissioner Keyser said he was confident that the city will meet its commitments, the water board maintained that the city hasn't an adequate margin of safety until Deer Creek water is made available by completion of the Salt Lake aqueduct. Work on the aqueduct is now held up by failure to obtain priorities for necessary steel and other materials.

The Detroit department of water supply announced last week it planned an appeal to President Roosevelt for action on the city's efforts to provide water and sewer facilities for the new defense plant at Willow Run and other war plants. Lawrence G. Lenhardt, superintendent of the department, said the city's $1,340,000 project for expansion of reservoir, pump, boiler and power facilities at the Springwells Station has been held up because of "dilatory" handling of the city's application for FWA funds.

Baltimore engineers, acting as advisers to the commission on city plan, last week urged the city to speed development of additional sources of water supply to cope with demand which has mounted to 150,000,000 gpd—a level that a survey in 1934 indicated would not be reached until 1950. As a "stop gap" measure, the engineers suggested the immediate erection of a pumping station on the Patapsco river at Avalon and a force pump main to the Montebello filters, at a cost of $4,000,000, to provide 50,000,000 gallons daily additional. The work would require one year to construct.

At Chicago, where work is more than half completed on the world's largest filtration plant, the city is expecting to receive an A-2 priority rating on the entire project. Recently, an A-2 rating was granted to complete the intake connecting laterals and emergency chlorinating facilities. A complete description of this huge project is scheduled for publication in the next issue of this journal.

Road-stripe paint substitute reported

The Utah state highway department last week reported that it had found what it believed to be a longer wearing, less expensive and more visible product to replace the familiar stripe of paint down the center of the highway.

The product, termed gilsonite, is a lustrous type of asphalt found near Fort Duchesne, Utah. Highway officials began experimenting with gilsonite after they learned that ordinary highway paint was out of the question this year because of the shortage of Chinese oils.

It was discovered that the substance could be adequately applied to the center of all concrete highways and would wear better and cost less than highway paint. On black asphalt, highway officials plan to roll white granite chips into a thickened gilsonite mixture.

Grant leaves to engineers joining U. S. services

Leaves of absence will be extended to engineers and technicians of the Texas State Highway Department who enter the direct employ of the U. S. Corps of Engineers, regardless of whether they go into uniform in the armed services or as civilian employees of the Corps.

In a statement issued at Austin last week, the department said that the large number of army camps, airports and military establishments in Texas made the action advisable.

"It is the desire of the highway department to share its technical force with the U. S. Corps of Engineers as needed to give full effect to the war effort."

About 38 percent of the engineering employees of the highway department have left its employ during the past year for defense and war activities.

Railroaders go for a train ride. RALPH BUDD (left) president of the Burlington and KARL FISCHER, his assistant, made the test run from Chicago to Galesburg, Ill., recently on the new pendulum suspension cars. Budd is one of the outstanding railroad engineers of the country.

MEN AT WORK

EARL LLOYD, Wyoming's deputy state engineer, signs official documents at his desk in the State Capitol at Cheyenne, shortly after he was elected as president of the Wyoming Engineering Society.

Not lack of work but expected reductions of gas-tax funds to finance all urgent construction was the report by P. H. DANIELLS, chief of surveys and plans, Missouri Highway Department, when an ENR editor called

ALBERT B. KOZMA, superintendent of the new sewage treatment plant at Rutherford, N. J., finds that operating problems are even more challenging than those to be found in design engineering, his former occupation.

Wide World Photo

Aiding salvagers who have taken on the colossal task of righting the former French liner "Normandie" in New York harbor, is this scale model of the ship. COMM. WILLIAM A. SULLIVAN (center) in charge of the salvage work, explains details of the model to LT. COMM. CARL CHANDLER (left) and CAPTAIN JOHN TOOKER.

LT.-COL. ROBERT I. RANDOLPH, with a brand new commission in the Corps of Engineers and a brand new uniform, is snapped at the Union Station in Chicago as he leaves for duty at Seattle. Well-known consulting engineer of Chicago, he has lately been serving as engineer assistant to the VI Zone CMC and the Chicago District Engineer. During the last war he commanded the 535th Engineer Battalion (colored) in France.

Progress on the Santa Fe Dam in southern California, a 12,000,000-cu.yd. earth fill structure, depends upon teamwork between the U. S. Engineer Department and executives of the four contracting firms that formed the "MWST" Corp. for this big job (Morrison-Knudsen Co., Winston Bros., J. F. Shea and Ford J. Twaits). The teamwork seems to be on a friendly basis judging from this job snapshot of (left) LAWRENCE GROTJAN, chief of surveys and safety engineer. U.S.E.D. and C. S. BRADLEY, project engineer for MWST.

Increasing building activity, both in war housing and plant expansion, promise to keep W. C. MABEE (right), chief engineer for the Indianapolis, Ind., Water Company, and his assistant, L. S. FINCH, plenty busy on new water main extensions during the summer.

E. D. HEREAU, superintendent for the Pittsburgh & Des Moines Steel Co. on a 1,000,000-gal. reservoir at Manhasset, Long Island, and MARTIN McREYNOLDS (right), superintendent of the riggers for Stone & Webster on a nearby Sperry Gyroscope project. The $98,700,000 reservoir is a 150-ft. high, all-welded structure for the Manhasset water district.

STEPHEN J. MICHUDA, engineer of bridges for the city of Chicago, was recently appointed chief of the emergency public works engineering organization which will handle protection, demolition and repair of all Chicago public works and buildings in case of air raids.

Keel laying crew on first concrete barges to be built on the Atlantic Seaboard. Keel laying is defined as placing the first longitudinal steel just completed here by the reinforcing steel crew. Standing in center, with tie, is CLIFFORD F. Mac EVOY, president, and kneeling in front is WARREN J. MacEVOY, general superintendent of Mac Evoy Shipbuilding Co.

MEN AND JOBS

Claude S. Wilson, formerly chief engineer of the Fort Smith (Ark.) Structural Steel Co., has become structural engineer with the John F. Beasley Construction Co. of Muskogee, Okla. and Dallas, Texas.

D. H. Askew, maintenance bridge engineer for the Texas State Highway Department, has been called to active service as a Lieutenant, (JG) in the U. S. Navy.

K. B. Hubbard, for many years associated with Good Roads Machinery Company of New York, has obtained a leave of absence to serve as inspector of material for the U. S. Navy at Trinidad.

H. C. Carter has resigned his post as field soils engineer for the Texas State Highway Department to join the U. S. Engineers Office at Galveston, Texas.

E. B. Cape, formerly an engineer with the Asphalt Institute at Dallas, Tex., has resigned to join the U. S. Engineers in the Dallas District Office.

Mark W. Starkweather, civil engineer of the City of Cleveland Division of Engineering, has been appointed a lieutenant in the Corps of Engineers.

J. Thomas Kelley, chief draftsman for the City of Austin, Texas, has resigned to become city manager of Lufkin, Tex.

M. V. Greer, assistant traffic engineer for the Texas State Highway Department, has resigned to enter a U. S. Army Engineer Construction Regiment at Camp Claiborne, La.

Ray H. Bower, assistant chief engineer of the Indiana State Highway Commission, has been promoted to the post of chief engineer to fill a vacancy created by the death of Merton R. Keefe.

Roderick F. Bott, former state supervisor of rural community sanitation projects in Minnesota, has been named district sanitary engineer in the Chippewa Falls area. **A. L. Bavone,** assistant state sanitary engineer, has been appointed sanitary engineer in the new Ward-Minot area.

Lee Sentman, construction engineer for the U. S. Bureau of Mines at a manganese plant near Chamberlain, S. D., has been called to active service in the Corps of Engineers.

Robert E. Perinovich is a second lieutenant with an engineer detachment at Tallahassee, Fla. **C. E. Moss** is engaged in design and test work in the engineering and technical division of the Newport News, Va., Shipbuilding and Drydock Co.

Howard Waddle, district engineer for the Arkansas Oil and Gas Commission, has resigned to accept a post as engineer in charge of construction of the McKamie gas cleaning plant near Stamps, Ark.

Dan Williams, of Boonville, N. C., formerly an engineer with Babcock & Williams in New York, is now a second lieutenant in the Coast Artillery Reserve stationed at Fort Kobbe, Panama Canal Zone.

Walter E. Standeven, construction engineer for the Public Works Administration, has joined the engineering staff of the Federal Works Agency in Fort Worth, Tex. Another addition to the Fort Worth FWA staff is **R. S. Kenyon,** formerly with the PWA office at Fort Worth and the Santee-Cooper development in South Carolina.

James H. Sawyer, of New Bern, N. C., has been commissioned a second lieutenant in the Corps of Engineers.

Lacey V. Murrow, former Washington state highway director, has been promoted from Lieut. Colonel to Colonel in the Corps of Engineers, according to announcement at Spokane.

Walter H. Hill, mining and civil engineer of Grangeville, Idaho, has joined the Corps of Engineers at the Umatilla ordnance depot, Hermiston, Ore.

Earl D. McGinty has assumed new duties as principal engineer for the Federal Works Agency in Alaska, with headquarters at Juneau. He formerly had been with the Office of Indian Affairs, Department of Interior, in Alaska and at Washington, D. C.

George Brown, engineer with the Whatcom county engineering department at Bellingham, Wash., has resigned to enter defense work.

Capt. Carroll L. Mann, Jr., of Raleigh, N. C., has been promoted to the rank of Major at Fort Bragg, N. C., where he is serving as area engineer.

Guy A. Watkins, utility engineer for the Farm Security Administration at Little Rock, Ark., has been appointed acting district engineer, succeeding George H. **Barton,** who has been called to active service in the Corps of Engineers.

Carl E. Sampson, formerly city engineer of Hopewell, Va., has resigned that post to take charge of construction of a new war plant near South Point, Ohio.

Walter V. Schakel, of Cincinnati, Ohio, has been made assistant engineer of the Ohio Division of the New York Central System.

Ernest C. Jones, superintendent of the Nashville city light plant, has been granted a leave of absence to accept a commission in the U. S. Navy.

Henrik Ovesen, formerly chief engineer of the Youngstown Sheet & Tube Co., Youngstown, Ohio, has been named consulting engineer for the Lukens Steel Co., of Oatesville, Pa.

O. A. D'Luhosch, bridge superintendent and engineer for the New York State Bridge Authority, has resigned to join the L. H. Swenson Co., contractors, on defense construction as a consulting and construction engineer.

J. C. McCarrell, Pennsylvania highway department district engineer at Allentown, resigned June 1 after 35 years of service with the department. He has been succeeded in his post at Allentown by **Henry E. Kloss,** of Tyrone.

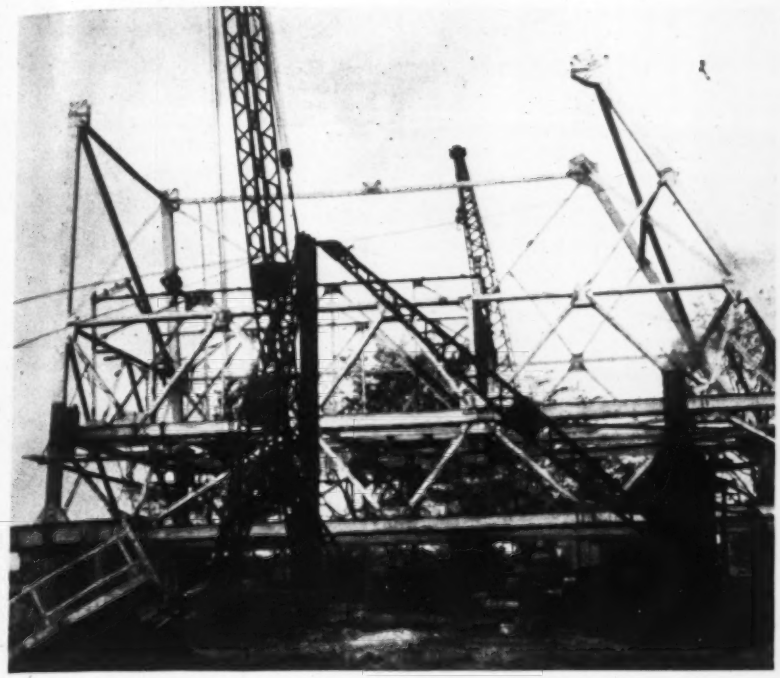
Lt. Col. K. Charles Bean, for the past 8 years chief engineer and general manager of the Los Angeles board of public utilities and transportation, has been called to active service in the Corps of Engineers.

Thomas Grieve, of Denver, Colo., has been placed in charge of the bridge division of the state highway department until the return of **Paul Bailey,** now a captain in the U. S. Army.

Temple W. Tutwiler, chief engineer for Cities Service Co. and director of its oil and natural gas operations, was recently awarded the degree of doctor of laws at the University of Alabama and Tuscaloosa.

Charles O. Lowe has resigned his post as assistant division engineer of the North Carolina highway and public works commission at Greensboro, to become associated with the Southern Mapping and Engineering Co. of Greensboro.

T. Matt Hally, former north Idaho district highway engineer, has suceeded **Sam E. Johnson** as state highway director. Johnson resigned recently to become a construction superintendent for the army in Alaska.



Conchas Dam towers used at Niagara Falls

Cableway towers first used for the construction of Conchas Dam in New Mexico, and later for the outlet works of Denison Dam near Denison, Texas, are being re-erected at Niagara Falls to aid in an $1,000,000 improvement now under way to obtain maximum power from water diverted around the falls.

Construction of a 2,200-ft. submerged weir above the Horseshoe Falls is planned. To place the rock for the weir, a 2,600-ft. cableway is to be built.

The Niagara Falls project is being carried out jointly by the governments of Canada and United States. The Canadian work is being done for the Dominion Department of Transport by the Ontario Hydro-Electric Power Commission, with C. G. Cline supervising all construction. The Buffalo district, U. S. Engineers, with Lieut. Col. George R. Goethals, district engineer, doing construction on the American side. The undertaking is to be described in an early issue of ENR.

Kentucky cities act to finance utility purchase

Five Southwestern Kentucky cities last week sold bond issues totaling $2,260,000, to finance their share of the purchase of electric power distribution facilities of the Kentucky-Tennessee Light & Power Co. (*ENR* April 23, p. 599).

The five cities—Bowling Green, Hopkinsville, Mayfield, Murray, and Russellville—are to pay $2,077,900 of the total purchase price of $3,535,000, with the Tennessee Valley Authority and four rural power distribution cooperatives paying the balance of the cost.

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Pontoon bridge thrown across Red River flood

Engineers of the 86th Engineer Battalion, U. S. Army, built a pontoon bridge 465 ft. long, across the turbulent Red River, near Denison, recently, when the stream washed out a service span.

Heavy rains had swollen the river far beyond the normal limits of its banks.

Constructed to carry a capacity of 45 tons, the bridge was completed in 21½ hours.

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Virginia proceeds with new corrections building

Governor Colgate Darden of Virginia said last week that work on foundations of a $25,000 State Department of Corrections building at the state penitentiary is now under way, and the building will be completed in 90 days.

The structure will be a three story brick and lumber building and is being erected by convict labor, largely of materials manufactured by convicts.

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Quebec reviews roads

A total of 407 miles of new roads were constructed in the province of Quebec, Canada, during 1941, according to the provincial roads department. Work included construction of 176 miles of two-lane highway.

Transfer CCC equipment to service of supply

Some 550 camps of the Civilian Conservation Corps, complete with equipment and buildings and valued at $30,000,000, have been transferred by the Federal Security Administration to the Service of Supply of the Army for its expansion program.

The War Department said that the majority of the camps will be used for troop housing, by adding them to existing posts, or as a nucleus for new posts and cantonments. Since most of the CCC camp buildings are portable, many of them will be dismantled and moved to locations where they can be of greater use to the Army, thus saving costs for labor and building materials.

Road-building equipment from many of the camps will be loaned to the Public Roads Administration for work on the Alaska Highway. The Army will lend other CCC road-building equipment to the National Park Service, Department of Interior, and to the U. S. Forest Service.

A number of CCC camps have been assigned to fire fighting and the organization will continue to do this work with some of its 350 remaining camps.

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Texas plans engineering library at A&M College

The Texas State Board of Registration for Professional Engineers last week announced that it had made provision for the establishment of a professional engineers' library, to be established on the campus of the Texas Agricultural and Mechanical College, at College Station.

The state will spend $60,000 for the library and its equipment.

The chairman of the board and the Dean of Engineering at the college are designated as two members of a three-man library committee, the third member to be chosen later. Books and library facilities are to be made available to all institutions teaching engineering, to approved libraries and engineering or technical associations in Texas. In addition, the college will conduct a study course in the use of engineering libraries for engineering students in residence and for engineers by correspondence.

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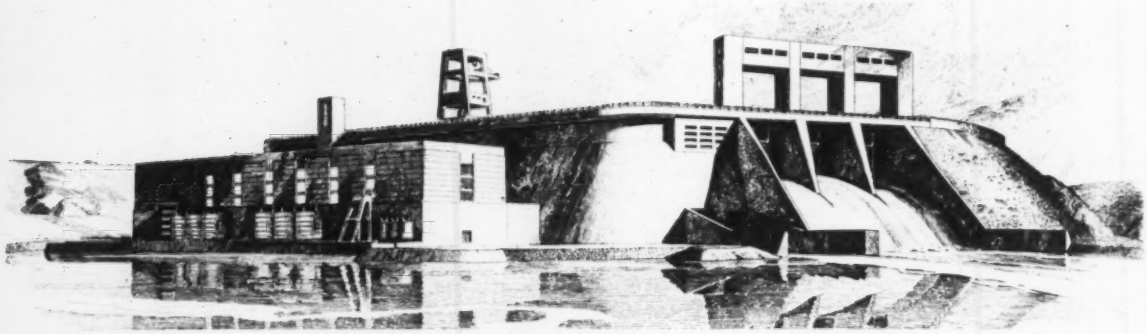
Set date for new exams

Examinations for professional engineers will be held on June 20 and for land surveyors June 19 and 20, by the Michigan Board of Registration for Architects, Professional Engineers and Land Surveyors. Examinations will be given at the University of Detroit, Michigan State College and Michigan College of Mining.

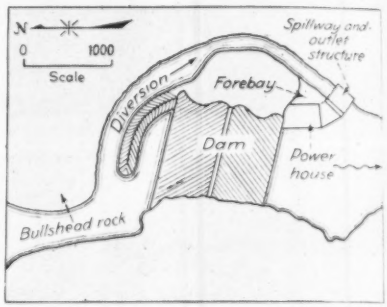


Reclamation Bureau starts Davis Dam on the Colorado River

About halfway between Boulder and Parker Dams on the Colorado River, 30 miles straight west of Kingman, Ariz. and 25 miles north of Needles, Calif., the desert will soon resound again to the clatter and roar of construction operations as Davis Dam, latest U. S. Bureau of Reclamation project, gets under way. Contract was let June 1 to Utah Construction Co., on a 1,200-day schedule and $18,996,392 price, which does not include the five 45,000-kva. generators and 62,200-hp. turbines that will be installed in the power house.

Davis Dam, originally called Bullshead after a nearby rock formation, is named for the late Arthur P. Davis, former head of the Reclamation Bureau. It will be an earth-and-rockfill structure, 138 ft. high above streambed and 1,600 ft. long at the crest, completely blocking the flow of the Colorado River, which will be carried around the dam in a cut of 200 ft. maximum depth and 4,500 ft. long in the left abutment, at the lower end of which the powerhouse and a spillway and outlet structure, shown in the accompanying architect's rendering, will be built. A schematic diagram of the layout is shown in the small map. Davis Dam is being built solely for power generation purposes, its output destined for Arizona and Southern California.

One of the most interesting aspects of Davis Dam is furnished by a comparison with Parker Dam about 75 miles downstream. At both sites bedrock below the river bed is covered with 150 to 200 ft. of deposited and broken material. Davis Dam, an earth-and-rockfill structure, is to be built virtually on top of this river fill (deepest part of the cutoff wall will be only about 75 ft. below river bed) while at Parker the engineers chose a concrete structure and founded it on rock, with the result that 235 ft. of its 315-ft. height is below the river bed.



Test drilling started at proposed Folsom Dam site

A drill crew has started exploratory drilling at the proposed site of Folsom Dam, on the American River in California, according to the U. S. Bureau of Reclamation.

The site is being tested in connection with irrigation, power and flood control studies of the proposed American River project, where investigations have developed the possibility of an advantageous connection with the Central Valley reclamation project that might indefinitely defer the need for the delta Cross Channel. Construction of the Central Valley project is well advanced, but construction has not yet started on the Cross Channel, designated to convey Sacramento River water from near Freeport to the San Joaquin River at Stockton.

The American River project was originally proposed in 1931, and has been advanced since the war as a source of more electric power for California industry. The project would include storage dams and hydro plants on both the North and South forks of the American River, possibly at Auburn and Coloma, and a third storage dam at the Folsom site, on the main river above Folsom.

Contractor gets pay for idle Yadkin Dam machines

Agreement upon principles for settling claims against the city of High Point, N. C., in connection with the halting of work on the hydro-electric project on the Yadkin River (*ENR* June 4, page 897) were worked out last week among Col. M. E. Gilmore, Federal Works Agency, representatives of the city, and the Maxon Construction Co., principal contractors on the project.

Long delayed by court actions the project is to be completed by the Federal Works Agency.

The agreement is expected to clear the way for continuing construction. Noting that the principles set forth are general in nature and may not cover all of the items involved in a settlement, the agreement provides:

That the contractor shall be reimbursed for out-of-pocket expenses which have been "prudently incurred" as a result of the court-enforced delay; that reimbursement for the loss sustained because of the idle equipment, tools and materials useful to the project during the period of suspension of work, shall be made in the form of a carrying charge based on the depreciated capital value as of the date on which such equipment was placed on the construction site; that the contractor shall be entitled to compensation for "reasonable and prudent capital expenditures," which were made in organizing and setting up the construction job and for which the contractor has received no other compensation; and that no monthly or other term rental based on A.G.C., or other schedules, shall be employed in the liquidation.

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Tule Lake drainage bore placed in operation

A 6,600-ft. tunnel, draining the swampy Tule Lake basin into lower Klamath Lake, near the California-Oregon border, completed recently by the U. S. Bureau of Reclamation, was placed in operation a short time ago.

Three pumps, designed for 50 sec.ft. each against a 60-ft. lift to the east portal of the tunnel, have been installed to aid in removing water from an area with no natural outlet. Several thousand acres of rich bottom land will be reclaimed as an area for resettlement of Japanese evacuees from the Pacific Coast (*ENR* May 7, p. 761).

Mexico maps changes in railroad system

Planning changes in its railway system that will increase operating revenues of the roads, the Mexican government last week planned replacing one railroad line with a highway, rehabilitation work on another and construction of a new terminal.

The railroad line constructed some years ago between Ixcaquixtla and Petlalcingo, rich mining and agricultural zones of the state of Puebla, is to be abandoned, the rails removed and a highway built on the right of way.

President Manuel Avila Camacho, in an order authorizing abandonment of the $2,500,000 line, said that the government has decided that the road cannot be operated at a profit. He ordered the Ministry of Communications and Public Works to make plans for a highway to form a link with the southern Mexican section of the Pan American Highway.

Funds to the amount of $110,000 have been appropriated for reconditioning of the Kansas City, Mexico, and Orient Railway which the government took over June 15, 1940. Money is to be used to improve and expand the railroad, repair the right of way and obtain rolling stock.

Another part of the rehabilitation program is the proposed construction of a passenger and freight terminal at Guadalajara, capital of the state of Jalisco, to replace a terminal which has been in service for more than 50 years. Tentative plans for this terminal call for expenditure of $1,125,000. A new food products packing house, to cost $210,000, is planned at Tampico.

Charge technical aid slighted by OCD

An American Institute of Architects committee on civilian protection last week charged that civilian defense officials are "dawdling" in their acceptance of the volunteered services of engineers, architects and constructors, and called upon the Office of Civilian Defense to set up a technical service composed of such trained men.

The report, made public by Richmond H. Shreve, of New York, president of the Institute, censured defense officials who reject offers of assistance and collaboration by architects.

Issued with the report was a copy of a letter from James H. Landis, OCD director, to Horace W. Peaslee, of Washington, D. C., chairman of the committee, in which Mr. Landis said he recognized the need for the services of such technically trained men.

Referring to instances when offers of aid by architects were declined, the report said that in one "extreme" case the rejection was made on the grounds that defense councils were fully organized and that "letting down the bars" to architects would only open the way for engineers, contractors and others. "If and when and where the bombs begin to fall," the report said, "the need is going to be realized — abruptly — that only exact technical knowledge and specific directions will count. There are no sweeping generalities which will cover the probable reaction to bombing of any group of buildings. One concrete slab should afford protection; the next one may be unsafe. The public should realize that what is needed is spot judgment of the men who designed and built these buildings, one by one—with that judgment reinforced by the latest technical findings on the effects of destructive forces."

The report stressed the great responsibility resting on schools and church officials to see that shelters or safe areas provided are truly safe, and to provide for quick and safe evacuation of the buildings, if necessary.

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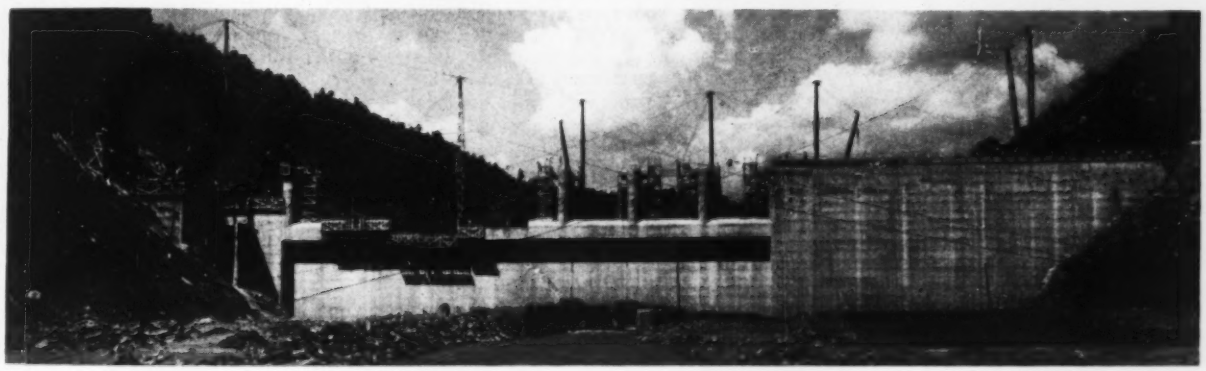
Bureau urges advance pay of construction charges

As a part of an "anti-inflation" drive on its 53 western irrigation projects, the Bureau of Reclamation last week urged advance payment on the costs charged to farmers.

Commissioner John C. Page, said the move is being made to compensate for the bigger crops and better prices anticipated this year that will greatly increase the income of irrigation farmers and towns and cities dependent on the reclamation projects.

Payment of as much as possible on construction charges not yet due and payable, may be made in advance in the form of war bonds, if authority to accept them is granted to the bureau under new legislation being explored and soon to be presented to Congress for approval.

Acting as a natural aid to the bureau's anti-inflationary measures will be an increase in operation and maintenance charges for projects, due to higher labor and materials costs.



TVA's Ocoee No. 3 Dam nearly ready for gate erection

Major concreting operations are nearing completion on the Tennessee Valley Authority's Ocoee No. 3 Dam on the Ocoee River, a tributary of the Hiwassee in southeastern Tennessee. New to TVA's construction methods is the use of guy derricks, six of which are shown.

The dam is a 610 ft. long, 110 ft. high concrete structure with seven 32 ft. 6 in. tainter gates to regulate the reservoir. A 13,000-ft. long, 12-ft. dia. tunnel extends downstream to a point on the lake above Ocoee No. 2 Dam where a head of 300 feet will be developed. The project will have one 27,000 kw. power unit with initial operation of the plant scheduled for early 1943. This is part of TVA's second emergency program authorized July 16, 1941 (ENR Dec. 18, 1941, p. 866).

Ocoee No. 3 has little storage of its own but will take water from the existing upstream Blue Ridge Dam and will regulate the flow to Ocoee No. 2 and No. 1. The project is above seven of the main Tennessee River Dams.

The work is being done by TVA with their own forces except construction of the tunnel which is under contract to J. F. Shea Co., Inc., and Morrison-Knudsen Co., Inc. Total cost will be about $6,250,000.

BRIEF NEWS

THE office of city engineer at Rocky Mount, N. C., has been abolished because of restrictions on engineering and contracting work.

TEXAS state health and engineering officials in Austin last week began conferences looking toward the elimination of some details of a proposed new sewage disposal plant for the city of Fort Worth. The curtailment is necessary in order to bring the project's cost within the limits of a grant of $537,000, approved by FWA. Original estimated cost was $711,000.

TOTAL construction awards in Texas during the month of April were $75,739,962—almost triple the figure for April of 1941.

THE Board of Supervisors of Jefferson Davis County, Miss., has entered an order suspending all WPA road work for the duration of the war.

THE U. S. Engineer office at Memphis, Tenn., said that upstream navigation on the Mississippi River near Helena, Ark., had been slowed last week by excessive current in the new Hardin Point cut-off, recently put into operation to save about 16 miles of travel. Engineers said they expected the river would soon adjust itself and the condition be righted.

THE Mexican National Irrigation Commission has extended its work to the state of Guerrero, with the announcement that plans have been completed for construction of four dams on the Santa Catarina River to irrigate 160,000 acres. Cost will be $250,000. Work is scheduled to start within 90 days.

STUDENT engineers at the University of Alberta, Canada, are being employed by the U. S. Public Roads Administration for work on the Alaska Highway.

THE CITY of Fort Worth, Texas, has started work on a $750,000 flood control project on Marine Creek, to include new bridges, extension of present structures, cleaning and widening the creek channel, and the erection of a concrete dam. A "flash" flood last week caused an estimated $1,000,000 damage to city property.

THE Quebec Public Service Board has authorized the city of Montreal to postpone completion of its north end trunk sewer until after the war. The sewer was planned to take care of all sewage discharges in the north end of the city and was to have cost about $7,500,000.

THIRTY-SEVEN senior engineering students of Iowa State College were released during the first ten days of May to fill the increasing demand for engineers in war production, according to T. R. Agg, dean of the engineering school. The men will receive their diplomas, in absentia, in June.

THE City Service Commission of Milwaukee, Wis., will hold examinations June 12 to fill the position of laboratory engineer, Class B, to assist the bureau of street construction and repair and other city departments in testing materials. Salary is $3,000 for the first year, and applicants may now reside in any other city in the United States.

British Columbia building total is $35,000,000

Approximately $35,000,000 was expended on construction and building activity in the Province of British Columbia during 1941, according to a recent tabulation of construction figures. Of the total, $20,955,375 is accounted for in building permits reported issued by 48 incorporated cities, municipalities and incorporated villages in the province. The balance of the figure comprises known costs for wartime construction projects.

The actual total may be higher than that given in the tabulation, since no details are available concerning the actual cost of any government projects.

The totals given include about $2,000,000 in army, navy and airport construction.

Speeding the War Effort:

Bending every possible effort toward strengthening America's war participation, engineers and constructors throughout the nation are advancing new production ideas, new methods of doing their jobs, finding new sources and uses for critical materials. Some of the results last week were:

Engineering education—means of speeding up replacement of the many trained engineers, draftsmen and others in the construction field who have joined the armed services, and providing a reservoir for future trained personnel needs—continued to occupy a major place in the eyes of the nation last week. In New York, Columbia University announced six intensive tuition-free courses to ge given this summer. The studies, which will vary in length from two to fourteen weeks, will include training in defense aspects of engineering, science and management, and will range from instruction in basic mathematics, topographical and general map making, to more advanced topics such as the chemistry of powder and explosives. Two courses have been particularly planned for women, in response to demand for women workers in defense industries to replace men being drafted. Women came into the engineering picture also in Decatur, Ind., where Purdue University announced a war training class in electrical engineering; and at Columbus, Ohio, where Ohio State University announced a new streamlined nine months' curriculum to train co-eds for positions in war industries. The Ohio course will emphasize basic mathematics, physics, chemistry, engineering drawing and shop work. And at Raleigh, N. C., the North Carolina State College School of Engineering reported that a state-wide campaign to interest qualified high school seniors in studying engineering to meet war needs has been reflected in a noticeable increase in the number of applications.

The nation's search for metals last week continued to turn up odd pieces of steel and iron in odd places. For example, G. Lee McClain, executive secretary of the Kentucky State Salvage Committee announced that sixteen old bridges, including thirteen on highways, and three railroad bridges, are to be raised for scrap metal; 120 tons of scrap metal is expected to be salvaged from four bridges across the abandoned Morris Canal in Newark, N. J.; the City of Milwaukee announced it had received a proposal from the War Production Board for the salvage of some 3,000 tons of street car tracks on abandoned routes in the city; and City Engineer W. S. Tomlinson, of Columbia, S. C., announced that about 900 tons of street car rails in that city's streets will be dug up and salvaged soon.

The search for substitute materials and domestic sources of supply for materials denied the nation by war in the Far East last week included the investigation by the Department of Interior Geological Survey of chromite deposits on the McGuffy Creek area in Siskiyou County, Calif. Also considered to aid the nation's war effort were construction of a refinery with large fuel storage capacity in the vast Permian Basin oil fields of west Texas and New Mexico, investigations of the possibilities of the Joaquin-Logansport gas field in Texas, and the announcement of the construction of a $32,000,000 plant in southern Texas, for the manufacture of synthetic rubber and for making basic ingredients for that rubber.

OBITUARY

Ralph W. Eaton, 62, public service engineer of the city of Providence, R. I., died June 1 at Bristol Highlands, R. I. A native of Hill, N. H., he was a graduate of the Massachusetts Institute of Technology and had served with the Westinghouse Electric & Mfg. Co. and the Shore Line Electric Railway before entering the city's service. In his 24 years with the city he contributed greatly to various phases of safety engineering, notably traffic accident prevention, in which field he had a nationwide reputation. He was a past president of the Providence Engineering Society.

Harry O. Hickok, 60, right-of-way engineer for most of the 21 years he was associated with the Iowa highway commission, died recently at Ames. Hickok was the creator and chairman since its formation of the right-of-way committee of the American Association of State Highway Officials.

Ing. Francisco Valdes y Espinosa, 63, Mexican engineer and fiscal expert who was for 25 years director of the National Mint, died at Mexico City.

Maj. Bert L. Baldwin, 83, veteran Cincinnati engineer, and former superintendent of the Cincinnati waterworks, died recently in that city. Major Baldwin served with the Corps of Engineers during the first World War.

Herbert S. Battie, Greensboro, N. C., civil engineer and draftsman, died June 5. A native of Massachusetts, he was a graduate of the North Carolina State College School of Engineering.

J. Palmer Peacock, 52, staff engineer of the state WPA office at Atlanta, Ga., died recently at Madison, Ga.

Col. Joseph Hyde Pratt, 72, of Chapel Hill, N. C., professor of geology at the University of North Carolina, died June 2. Colonel Pratt, a consulting engineer and former state geologist, served as division engineer for the 105th Engineers in the 30th Division during the first World War, served as secretary of the North Carolina Good Roads Association, and became secretary of the first state highway commission in 1916. He was a graduate of Yale University, and a member of the American Society of Civil Engineers, the New York and North Carolina Academy of Sciences and many other organizations.

Maj. Elliott J. Tucker, 55, post engineer officer at Camp Davis, Wilmington, N. C., died recently during an inspection tour at Fort Macon. Major Tucker was a reserve officer and a civilian employee in the office of the Mobile, Ala., district army engineer before being called to active service.

John F. Woodruff, Sr., 68, concrete contractor at Louisville, Ky., for many years, died recently.

Herbert Kirkman Ward, 59, a civil engineer for the state department of public works for 23 years, died recently at Horse Creek, Siskiyou County, Calif. He had lived at Reading, Calif., where he was employed in the local state highway department office.

J. A. Jackson, 56, contractor and civil engineer of Cocoa, Fla., died at his home at Cocoa recently. He had served as a Florida county engineer for two terms.

Kenneth N. Evans, 60, Illinois Highway Department maintenance engineer for the French Village district, and a department employee for more than 28 years, died recently at his home in Belleville, Ill.

Samuel Coleman Redd, 62, of Phoenix, Ariz., an engineer with the Arizona State Highway Department for several years, died June 4 at Phoenix. Mr. Redd, a native of Virginia, came to Arizona in 1912, and had been county engineer for Greenlee County, and for the Phelps Dodge Corporation at the company's Morenci mine.

CONTRACTS AND CAPITAL

ENGINEERING CONSTRUCTION volume for the week totals $379,458,000, the second highest weekly value ever reported. It is 38 percent above the preceding week's total, and 171 percent higher than the volume for the corresponding 1941 week. Over 95 percent of the volume is concentrated in federal construction, 3 percent in state and municipal work, and the balance, 2 percent, in private.

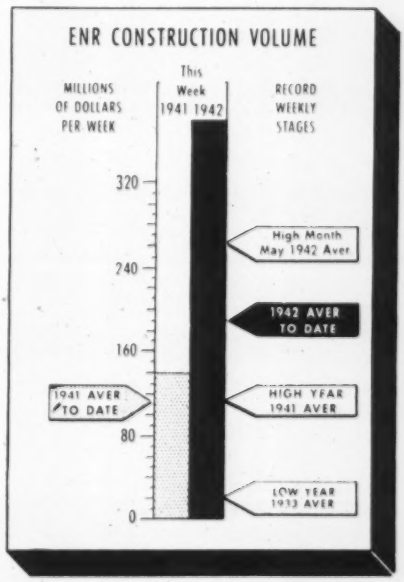
Federal work is 310 percent higher than a year ago, and 46 percent above last week. Public work tops last year by 238 percent, and gains 44 percent over a week ago. Private construction is 80 and 63 percent lower, respectively, than last year and last week.

The current week's near record construction brings the volume for 1942 to $4,590,785,000, an 82 percent increase over the 24-week period last year. Private work, $322,481,000, is 54 percent below the period a year ago, but public construction, $4,268,304,000, is 134 percent higher as a result of the 228 percent gain in federal work.

Public building construction, $322,791,000 accounts for almost seven-eighths of the week's volume, and climbs to a new all-time high.

New capital for construction purposes for the week, $47,243,000, is 104 percent higher than the total reported for the corresponding 1941 week. The week's new financing is made up of $45,968,000 in corporate security issues, and $1,275,000 in state and municipal bond sales.

New construction financing for the year to date, $6,870,550,000, is 108 percent above the $3,305,568,000 reported for the 24-week period in 1941.



CONTRACTS

(Thousands of dollars)

	Week Ending June 12 1941	June 4 1942	June 11 1942
Federal	$88,407	$248,611	$362,627
State & Municipal	22,024	10,509	10,962
Total public	$110,431	$259,120	$373,589
Total private	29,394	15,851	5,869
TOTALS	$139,825	$274,971	$379,458
Cumulative 1942 (24 weeks)			$4,590,785
1941 (24 weeks)			$2,524,577

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	1941 24 weeks	Cumulative 1942 24 weeks
NON-FEDERAL	$414,231	$331,595
Corp. Securities	125,393	136,384
State & Mun.	236,495	147,792
U.S.H.A. loans	22,550	.....
R.F.C. loans	29,793	47,419
FEDERAL	$2,891,337	$6,538,955
TOTAL CAPITAL	$3,305,568	$6,870,550

ENR INDEX NUMBERS

		1913	1926
Index Base = 100			
Construction Cost	June '42	274.19	131.80
Building Cost	June '42	221.18	119.56
Volume	May '42	821	360

FHA MORTGAGES

	Week Ending June 7 1941	May 30 1942	June 6 1942
Selected for appraisal			
Title II	$31,459	$12,458	$ 9,512*
Title VI	$ 5,845	$10,910	$12,863*

* Subject to revision.

CONSTRUCTION REPORTS

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, Manager *SCOTT McLEOD, Statistician*
(Daily service also available—Write for details)

Location of ENR Correspondents

Symbols and Abbreviations Include

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD Engineering News-Record Construction Daily
A-E-M Architect — Engineer-Management type of contract.

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction

(Named in order of Listing)

Water Supply	Unclassified
Sewers, Waste Disposal	Latin America
Bridges, Grade Cross'gs	Public Buildings
Streets & Roads	Commercial Buildings
Earthwork, Waterways	Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads):

BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR);

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Note: To comply with censorship requirements, addresses on some reports are being generalized. Data which would reveal the purpose of the improvements and the size are withheld. The name of contractor and general area are reported.

WATER SUPPLY

PROPOSED WORK

Ia., Sac City—City, L. A. Roosa, clk., rebuilding WW. sys. $16,000. Bond election June 9 for same.

†Kentucky—U. S. Eng., P. O. Box 59, Louisville, water distr., site development, sewers, railroad tracks, electrical distr. sys.

†La., New Orleans—Sewerage & Water Bd., New Orleans, 5½ mi. 16 in. watermain, $350,000. **FWA.**

Mass., Medway—Town, B. Isabelle McGourty, clk., Town Hall, bids soon, water sys., drilling wells, pump. station, etc. $28,500. Whitman & Howard, 89 Broad St., Boston, engrs. CD 4/14—ENR 4/16.

†Mich., Ypsilanti—City, WW. expansion, Project No. 20-272, $479,590; Project No. 20-271, $499,990. **FWA.** Shoecraft, Drury & McNamee, 1032 Washington St., Ann Arbor, Mich., engrs.

Neb., Omaha—Metropolitan Utilities Dist., 18 and Harney Sts., intake constr. at water plant, $150,000. Burns & McDonnell, 107 W. Linwood St., Kansas City, Mo., engrs.

†N. H., Portsmouth—Federal Works Agency, 120 Boylston St., Boston, Mass., water sys., Contr. 3, N.H. 27-901. **FWA.** H. E. Bailey, 127 State St., Boston, Mass., engr.

†Tenn., Millington—Federal Works Agency, Atlanta, Ga., water and sewerage sys., sewage treatment plant.

†Tex., Corpus Christi—City, c/o A. C. McCaughan, mayor, WW. facilities, Tex. 41-907F. $140,000. **FWA.** CD 11/27—ENR 12/4.

†Tex., Corpus Christi—City, c/o A. C. McCaughan, mayor, water sys. imprvs., Tex. 41-238. $350,000. **FWA.** CD 8/14—ENR 8/21.

Tex., Dalhart—City, WW sys. imprvs., exten. Over $15,000.

BIDS ASKED

Bids Asked June 16

Mass., Wakefield—Town, Water Dpt., Town Hall, Contr. 2, water sys., dug wells and pump. sta. $40,000. Weston & Sampson, 14 Beacon St., Boston, engrs. CD 6/8—ENR 5/28.

Mass., Worcester—H. Green, comr. P. Wks., three 1 story, 20x25 ft., brick chlorination plant bldgs. $30,000. E. R. Perry, City Hall, engr. CD 5/5—ENR 5/7.

Bids Asked June 19

†N. H., Portsmouth—City, watermain, Contr. 3, N.H. 27-104. $60,000. **FWA.** F. A. Barbour, 73 Tremont St., Boston, Mass., engr.

LOW BIDDERS

Calif., Alameda—East Bay Municipal Utility Dist., 512 16 St., Oakland, 3,550 lin. ft. 12 in. c.i. watermain Webster and Tynan Sts., from Underground Constr. Co., 354 Hobart St., Oakland. **$17,609.**

†N. H., Portsmouth—City, 126 Daniels St., water sys., N.H. 27-104, Contr. 5, from R. Civitarese, 480 Metropolitan Ave., Hyde Park, Mass. **$68,866. FWA.** Bids 6/3. CD 5/28—ENR 6/4.

†N. C., Wilmington—City, J. G. Wallace, mayor, June 3, WW. imprvs., N.C. 31-119, from W. Muirhead Constr. Co., Durham, **$459,000. FWA.** Bids 6/3. CD 5/5—ENR 5/7.

†Okla., Tulsa—C. H. Veale, mayor, May 26, WW. imprvs., coagulation basin, Okla. 34-105, Contr. 1, from F. D. Ford Constr. Co., Cordell, **$75,000.** Est. $100,000. **FWA.** CD 5/19—ENR 5/14.

Wis., Schofield—Village, May 20, water and sanitary sewers, Contr. 1, from J. Schlise, Sturgeon Bay, **$52,339.** A. E. McMahon Eng. Co., Menasha, engr.

CONTRACTS AWARDED

★**†California**—U. S. Eng., 751 S. Figueroa St., Los Angeles, water distr. sys., to Midland Constr. Co., 8677 Otis St., South Gate, less than **$1,000,000.**

★**†Indiana**—Pub. Housing Auth., NHA, 201 N. Wells St., Chicago, Ill., water distr. sys., sewers, sewage treatment plant, road imprvs. bridges, landscaping, to Rieth-Riley Co., W. Madison St., Goshen, **$2,000,000.** A. L. Taylor & Associates, 4614 Prospect Ave., Cleveland, O., archts. Awarded 6/1.

†Ky., Brandenburg—City, water imprvs. infiltration plant, to Clark Stewart & Wood, 640 W. 2 St., Lexington, **$29,500. FWA.** CD 3/9—ENR 3/22.

Mass., Hingham—Hingham Water Co., 20 South St., wells, to Layne-Bowler New England Corp., 19 Congress St., Boston. Est. **$15,000.** American Constr. & Eng. Co., 1775 Bway., New York, N. Y., engrs.

†New Jersey—U. S. Eng., Penn Mutual Bldg., Phila., Pa., rein.-con. water reservoir, to Nicholson Co., 10 Rockefeller Plaza, New York, N. Y., **$110,000.**

†Ohio—U. S. Eng., 700 Guardian Bldg., Detroit, Mich., designing, furnishing, del., painting two 200,000 gal. Redwood water tanks, to W. E. Caldwell Co., 200 E. Brandeis St., Louisville, Ky. Bids 5/13. CD 5/6.

Pennsylvania—Carnegie Illinois Steel Corp., J. L. Perry, pres., Carnegie Bldg., Pittsburgh, 1 story, 90x160 ft., brick, steel pump. sta., to Raisler Corp., 129 Amsterdam Ave., New York, N. Y. Est. **$50,000-$100,000.**

†Texas—U. S. Eng., Fort Sam Houston, water supply facilities, to Layne-Texas Co., 6931 Harrisburg Blvd., approx. **$28,000.**

†Tex., Denison—U. S. Eng., Citizens Bank Bldg., Denison, rein.-con. elevated water storage tank, etc. Inv. Tex. 257-42-221, to Standard Paving Co., Majestic Bldg., Fort Worth, approx. **$130,000.** Bids about 5/26. CD 5/21.

†Tex., Grand Prairie—G. H. Turner, mayor, Contr. 1, WW sys., Tex. 41-373, to B. G. Welborn, 1319 Wilbur St., Dallas, **$97,381.** Est. $100,000. **FWA.** CD 5/15.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

†Ind., Speedway City—Town, W. Baxter, clk., sewage disposal plant, $250,000. **FWA.** J. W. Moore & Son, 827 Ind. Pythian Bldg., Indianapolis, eng.

†La., New Orleans—Sewerage & Water Bd., enlarging sewerage sys. $70,000. **FWA.**

Tex., Dalhart—Sanitary sewerage sys. imprvs. Over $25,000.

Tex., Kingsville—City, incinerator plant, $37,250. Applied for FWA funds. Pouriloy & Patterson, Box 1321, Kingsville, engrs.

†Tex., Wichita Falls—City, J. Bryan Miller, city mgr., received no bids May 7, sanitary sewers, Tex. 41-167. $118,000. **FWA.** F. M. Rugeley, city engr. CD 4/27—ENR 4/30.

BIDS ASKED

Bids Asked June 18

Colo., Denver—City and Denver Co., sewage disposal plant, $120,000. Black & Veatch, 4706 Bway., Kansas City, Mo., engrs.

Wis., Manawa—Village, furnishing, laying 5,910 ft. 8 in. vitr. clay sewers 1,020 ft. 6 in. house connections, constructing 21 manholes, etc. A. E. McMahon Eng. Co., Menasha, engr.

Bids Asked June 22

S. D., Sioux Falls—C. M. Whitfield, city aud., imprv. sewage plant, $28,000. Greely & Hansen, 6 N. Michigan Ave., Chicago, Ill., engrs.

†Okla., Muskogee—R. Tuckert, city mgr., sewage disposal plant, Okla. 34-149. $197,319. **FWA.** Morgan & Collins, 416 Court St., engrs. CD 4/30—ENR 5/7.

Bids Asked

†Nevada—U. S. Eng., Wright Bldg., Sacramento, Calif., sewage disposal plant, Inv. 62.

†N. J., North Brunswick—Town, Town Hall, sewage disposal plant addn., Docket NJ 28-116, $194,000. **FWA.** H. R. Fleming, 9 Allen St., New Brunswick, engr. CD 5/11—ENR 5/14.

†Texas—U. S. Eng., Fort Sam Houston, sewers, water lines, gas lines. $70,000.

LOW BIDDERS

†California—U. S. Eng., Wright Bldg., Sacramento, May 29, sewage disposal plant addns., from Central California Constr. Co. Inc. Hind Bldg., 230 California St., San Francisco, **$65,340.**

†California—U. S. Eng., Wright Bldg., Sacramento, June 1, sewage disposal plant, from Carter & Fowler, 330 Q St., Bakersfield, **$62,-020.**

†California—U. S. Eng., Wright Bldg., Sacramento, sewage disposal plant addn., from Campbell Constr. Co., 800 R St., Sacramento, **$79,504.** Bids 6/4. CD 5/29.

Calif., Fairfield—L. Morrill, clk., Solano Co., May 27, supplemental outfall sewer, from Oakland Sewer Constr. Co., 9915 Walnut St., Oakland, **$25,190.** CD 5/21.

†Me., Bath—City, Water Dist., 1 Lombard St., June 2, sewers, Me. 17-111, from R. Civitarese, 480 Metropolitan Ave., Hyde Park, Mass. **$30,700. FWA.** CD 5/21—ENR 5/28.

†Tex., El Campo—J. S. Carroll, mayor, sewerage sys. imprvs., Tex. 41-226, from P. J. Eller Co., 227 N. Lenox St., Houston. **$78,629.** Est. $95,000. CD 5/14—ENR 5/21.

CONTRACTS AWARDED

★**†California**—U. S. Eng., 74 New Montgomery St., San Francisco, sanitary facilities, to Howson Bros., 175 N. Carmel St., Gilroy, under **$1,000,000.** Awarded 6/2.

†California—U. S. Eng., 74 New Montgomery St., San Francisco, incinerator to Bridges Constr. Co., 1087 Pine Ave., San Jose. Est. above **$25,000.** Awarded 6/4.

†Ill., Wilmington—City, sewers, watermains, Project Ill. 11-144 and 145, to Henry Rees, Quincy. **$25,000. FWA.** CD 5/12.

★**†Kansas**—Pub. Housing Auth., NHA, 201 N. Wells St., Chicago, Ill., sanitary and storm sewers, to W. B. Carter, 1224 N. Broadway, Wichita, **$670,136***** demolition, grading, excav., to Sherwood Constr. Co., 430 W. 1 St., Wichita, **$190,825***** water distr. sys., to W. R. Carter, 1224 N. Bway, Wichita, **$318,124.** Grand total $1,179,085.

†La., Alexandria—City, sewerage sys., La. 16-116, to Preston Brasher, Alexandria, **$161,-641. FWA.** Bids 6/1, awarded 6/3. CD 4/30—ENR 5/7.

★**†Mich., Warren**—Warren Twp., 2270 Van Dyke Ave., Sects. 4, 5 and 6, sewers, to Gargaro Constr. Co., 40 Seven Mile Rd., De-

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